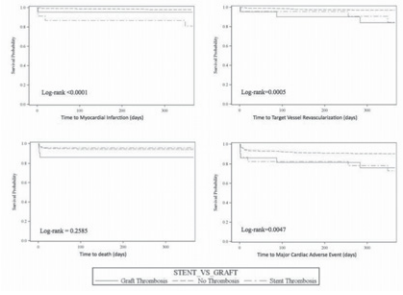
control group stent and graft thrombosis were associated to a higher MACE rates, 9.3%, 26.1% and 22.7% respectively (p=0.004) (Figure). Moreover, after the Cox regression analysis, only stent thrombosis was shown to be associated with an increased risk of MACE (HR 2.57, confidence interval 95% 1.08-6.08).



Conclusion: In the setting of primary PCI for STEMI, stent and graft thrombosis are associated with poorer clinical outcomes at 12 months (i.e. death, myocardial infarction and target vessel revascularization) when compared to STEMI due to a native coronary event.

TCT-52

Patients With Stent Thrombosis Have a Similar Prognosis to Patients Presenting With ST-elevation Myocardial Infarction of De-novo Lesions

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Background: Drug-eluting stent thrombosis (ST), a major complication of percutaneous coronary intervention (PCI), commonly presents as ST-elevation myocardial infarction (STEMI). Whether STEMI related to ST has the same clinical impact as STEMI on *de novo* coronary lesions is uncertain. This study was designed to address this issue.
Methods: We included 985 consecutive STEMI patients treated with primary PCI in our catheterization laboratory from 2003 to 2009. 102 patients were diagnosed as having a ST in drug-eluting stent. STEMI patients with ST (ST group) were compared with the remaining 883 patients with STEMI unrelated to ST (*de novo* group). The occurrence of the in-hospital composite end point of death and myocardial infarction was compared between the groups.
Results: Patients in the ST group had a higher incidence of diabetes mellitus and a lower ejection fraction than did patients in the *de novo* group. At the time of the procedure, patients in the ST group had a lower pre-procedure TIMI 3 flow rate. The in-hospital rate of death or myocardial infarction was higher in the ST group than in the *de-novo* group (12.75% vs. 7.36%, p=0.05). In multivariable analysis adjusted for baseline and procedural variables, ST was no longer associated with a higher rate of in-hospital death or myocardial infarction (OR=1.18, 95% CI=0.53-2.63, p=0.384).

Independent predictors of in hospital Composite endpoint of death and myocardial infarction.

	Hazard Ratio	95% Confidence Interval	*P*-value
Age (per year)	1.04	1.01-1.06	0.005
Cardiogenic shock	11.50	6.38-20.07	<0.001
angiographic success of all lesion treated	0.18	0.06-0.55	0.002
Anterior infarction location	1.80	1.03-3.13	0.038
STEMI due to stent thrombosis	1.18	0.53-2.63	0.384
Only p-value <0.05 (but STEMI due to stent thrombosis) has been reported in the table. STEMI=ST-elev			

Conclusion: After primary PCI, the in-hospital adjusted rate of death and myocardial infarction did not differ between patients with STEMI due to ST and patients with STEMI due to thrombosis of a *de novo* lesion.

TCT-53

Multivessel Stenting During Primary Percutaneous Coronary Intervention For Acute Myocardial Infarction: A Quantitative Review

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Background: A significant number of patients undergoing primary percutaneous coronary intervention (pPCI) for ST elevation myocardial infarction (STEMI) have multivessel disease (MVD). Despite absence of clinical evidence, current guidelines advise PCI of infarct related artery only (IRA-PCI) at the time of pPCI and recommend subsequent staged PCI of non-IRA lesions. In this study, we report the results of a quantitative review evaluating the safety and efficacy of multivessel stenting to treat both IRA and non-IRA lesions (complete PCI) during pPCI.
Methods: A comprehensive literature search was performed. Studies evaluating strategy of complete PCI compared with IRA-PCI in patients with MVD undergoing pPCI were included. Patients with cardiogenic shock were excluded from analysis when separate data was available. Odds ratios were calculated for categorical data of each study and the combined data using Mantel-Haenszel chi-square statistic.
Results: A total of 2572 patients from 9 studies including 3 randomized controlled trials were included. 1562 patients underwent IRA-PCI, while 1010 underwent complete PCI at the time of pPCI. In IRA-PCI group, 376 subsequently had staged PCI of non-IRA lesions, and management of non-IRA lesions in 1186 patients was at the discretion of the treating physician. The clinical outcomes are shown in the table.
Table: In-hospital and long term clinical outcomes

	IRA-PCI	Complete PCI	Odds ratio (95% CI)
In-hospital			
Bleeding	3.7%	2%	0.80 (0.16-4.03)
Stroke	0.6%	1.8%	1.63 (0.10-27.15)
Death	3.5%	3.9%	1.85 (0.91-3.76)
Long term			
Re-infarction	6.5%	4.7%	0.59 (0.26-1.31)
Stent thrombosis	3.4%	4.1%	1.27 (0.16-9.96)
Revascularization	26.3%	16.2%	0.62 (0.41-0.95)*
Death	8.3%	8.0%	1.37 (0.94-2.01)
MACE	32.5%	24%	0.66 (0.40-1.09)

MACE-major adverse clinical events, * p<0.05
Conclusion: This quantitative review of available evidence suggests that in patients without hemodynamic instability, complete PCI at the time of pPCI is associated with similar rates of in-hospital and long term MACE compared to patients undergoing IRA-PCI. However, rates of unplanned revascularization are lower in the complete PCI group. A large randomized study is required to confirm the findings of this study.

TCT-54

Relationship of Blood Transfusion and Clinical Outcome in Patients Treated with Primary Angioplasty for Acute Myocardial Infarction

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Background: Few data exist about the prognostic impact of blood transfusion (BT) in patients treated with primary percutaneous coronary intervention (PCI) for acute myocardial infarction (AMI). The aim of the study was to assess the impact of BT on cardiac mortality and ischemic related events (IE) in patients treated with primary PCI for AMI.
Methods: From 1995 to 2007, 2,771 patients underwent primary PCI. Ninty-three (4.1%) patients received BT. Indication for BT was an haemoglobin value < 9g/dl. The impact of BT on 6-month cardiac mortality and IE (composite of ischemic related cardiac death and nonfatal reinfarction) were assessed by multivariate Cox regression analysis and with a propensity-score adjusted multivariate analysis.
Results: Median haemoglobin value in the BT group was 8.1 g/dl (IQ range 7.6-8.5). There were significant differences (p<.05) in baseline clinical and angiographic characteristics between the BT group (n=93) and the nonBT group (n=2678): mean age 73 ± 10 yrs vs 65 ± 12 yrs; male 49% vs 76%; diabetes 19% vs 15%; previous myocardial infarction 18% vs 11%; cardiogenic shock on admission 28% vs 11%; ischemia time (h) 4.8 ± 2.6 vs 4.0 ± 2.3; multivessel disease 65% vs 49%. The primary PCI success rate was similar in both groups (97.9% vs 98.3%). In-hospital major bleeding (TIMI criteria) and vascular complication were significantly higher in BT group: 0.3% vs 39% (p<.001) and 1.8% vs 28% (p<.001) respectively. The 6-month follow-up rate was 100%. Six-month cardiac mortality rate was 26.9% in BT group and 6.9% in nonBT group (p<.001) and IE were 9.7% vs. 2.2% respectively (p<.001). Multivariate analysis showed BT to be an independent predictor of cardiac death (HR 2.33, 95% CI 1.49-3.64; p<0.001) and cardiac IE (HR 4.58, 95% CI 2.24 - 9.37; p<.001), also adjusting for the propensity-score (c-statistic 0.92): HR 2.07 (p=.048) for cardiac mortality and HR 5.26 (p=.001) for IE.
Conclusions: BT is associated with unfavourable characteristics and a poor outcome in patients treated with primary PCI. However, BT remains an independent predictor of mortality also with a restricted use to patients with severe anemia. Probably the cardiac IE play a key role to explain the worse prognosis.

TCT-55

Clinical Outcomes in Unselected Patients Presenting with Acute STEMI Complicated by Cardiogenic Shock in the Primary PCI era - Early Percutaneous Haemodynamic Support is Indicated but Underutilised

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Introduction: ST elevation myocardial infarction (STEMI) complicated by cardiogenic shock (CS) is associated with a high mortality rate. We evaluated patient outcomes and predictors of survival among patients managed with contemporary practice involving primary percutaneous coronary intervention (PCI) and the use of mechanical haemodynamic support.
Methods: The Heart Attack Centre at The London Chest Hospital provides a network-wide 24-hour primary PCI service to a population of 1.8 million. We collected clinical data on patients with STEMI complicated by CS including baseline characteristics, procedural details, in-hospital complications and all cause mortality at 12 months. Mortality data were obtained from the Office of National Statistics. CS was defined in accordance with BCIS guidelines as low systolic blood pressure (<100mmHg), a pulse >100bpm, and who were cool, clammy or required inotropes.
Results: Between January 2008 and December 2009, 82 (7.8%) of 1046 patients treated with primary PCI for STEMI had CS on presentation. The patient characteristics are shown in table 1. In-patient mortality was 28% for CS versus 2% for non-shock (p<0.001). All cause mortality at 12 months was 30% compared to 4.7% for non-shock patients (p<0.001). An intra-aortic balloon pump (IABP) was used in 38 (46%) patients with CS. There was no significant difference in the rate of IABP use among patients who died vs survivors. However, early (at start of case) IABP use was higher among survivors. There was a significantly higher prevalence of multi-vessel/left main disease (p<0.001) among patients who died.
Conclusion: CS was associated with a six fold increase in in-hospital mortality after STEMI in unselected patients managed with primary PCI. For patients with CS who survived to hospital discharge, the death rate at 12 months was remarkably low. The adoption of early haemodynamic support improves survival among STEMI presenting with cardiogenic shock but may be under utilised.
Table 1. Patient characteristics

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